Title: Enhanced LSB Image Steganography Method By Using Knight Tour Algorithm, Vigenere Encryption and LZW Compression

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Abstract: The challenge of steganographic methods is to create a rational balance between the quality of the file and the size of data that can be transferred. In addition, the robustness of the technique and security of the obscure data are the facts that cannot be dissembled. The Least Significant Bit (LSB) insertion approach provides a high degree of visual quality and a large amount of capacity for the concealed data, but the covert message is not well protected in this method. In the proposed method, the secret data is firstly encoded by using the Vigenere encryption method to guarantee the protection of the hidden message. Afterward, the Lempel Ziv Welch (LZW) technique compresses the data to reduce the occupational capacity of the confidential data. Then, by utilizing the extended knight tour algorithm, each bitstream of the data is spread out on the image to increase the robustness of the method. The results show that the proposed method not only improves the security and payload capacity problems of the simple LSB method, but also increases the visual quality of the stego image.